

I. Outfall Location	
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For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	
002	39	2	36	-77	25	43	Unnamed tributary to Broad Run
003	39	1	27	-77	27	15	Unnamed tributary to Broad Run
004	39	1	15	-77	27	10	Unnamed tributary to Broad Run
005	39	0	57	-77	27	27	Unnamed tributary to Broad Run
006	39	1	8	-77	27	34	Unnamed tributary to Broad Run

II. Discharge Date (When do you expect to begin discharging?)

04/01/2016

### III. Flows, Sources of Pollution, and Treatment Technologies

A. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

[illegible]





CONTINUED FROM THE FRONT		EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number 002
<b>V. Effluent Characteristics</b>			
<p>A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.</p> <p><b>General Instructions (See table 2D-2 for Pollutants)</b>  Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.</p>			
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.47 lbs	0.78 mg/L 0.29 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 9.0 lbs	8.62 mg/L 3.23 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 1.54 lbs	0.16 mg/L 0.01 lbs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.34 lbs	0.25 mg/L 0.09 lbs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
pH	7.5	6.9	Grab samples taken at discharge to system
Flow	0.045 MG	0.045 MG	Flow discharged to system while flushing
Chloroform	No Data	0.0013 mg/L 0.0005 lbs	Monitoring of Outfall 001
Phenol	No Data	0.0013 mg/L 0.0005 lbs	Monitoring of Outfall 001
Zinc	No Data	0.0755 mg/L 0.03 lbs	Monitoring of Outfall 001

CONTINUED FROM THE FRONT		EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number 003
<b>V. Effluent Characteristics</b>			
<p>A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.</p> <p><b>General Instructions</b> (See table 2D-2 for Pollutants)          Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.</p>			
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.08 lbs	0.78 mg/L 0.05 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 1.60 lbs	8.62 mg/L 0.58 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 0.27 lbs	0.16 mg/L 0.01 lbs	Grab samples taken at discharge to system
Ammonia			Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
pH	7.5	6.9	Grab samples taken at discharge to system
Flow	0.008 MG	0.008 MG	Flow discharged to system while flushing
Chloroform	No Data	0.0013 mg/L 0.00009 lbs	Monitoring of Outfall 001
Phenol	No Data	0.0013 mg/L 0.00009 lbs	Monitoring of Outfall 001
Zinc	No Data	0.0755 mg/L 0.005 lbs	Monitoring of Outfall 001



CONTINUED FROM THE FRONT		EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number 004
<b>V. Effluent Characteristics</b>			
<p>A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.</p> <p><b>General Instructions</b> (See table 2D-2 for Pollutants)  Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.</p>			
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.08 lbs	0.78 mg/L 0.05 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 1.60 lbs	8.62 mg/L 0.58 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 0.27 lbs	0.16 mg/L 0.01 lbs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.06 lbs	0.25 mg/L 0.02 lbs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
pH	7.5	6.9	Grab samples taken at discharge to system
Flow	0.008 MG	0.008 MG	Flow discharged to system while flushing
Chloroform	No Data	0.0013 mg/L 0.00009 lbs	Monitoring of Outfall 001
Phenol	No Data	0.0013 mg/L 0.00009 lbs	Monitoring of Outfall 001
Zinc	No Data	0.0755 mg/L 0.005 lbs	Monitoring of Outfall 001

CONTINUED FROM THE FRONT		EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number 005
<b>V. Effluent Characteristics</b>			
<p>A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.</p> <p><b>General Instructions</b> (See table 2D-2 for Pollutants)          Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.</p>			
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.38 lbs	0.78 mg/L 0.23 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 7.17 lbs	8.62 mg/L 2.59 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 1.23 lbs	0.16 mg/L 0.05 lbs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.27 lbs	0.25 mg/L 0.08 lbs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
pH	7.5	6.9	Grab samples taken at discharge to system
Flow	0.036 MG	0.036 MG	Flow discharged to system while flushing
Chloroform	No Data	0.0013 mg/L 0.0004 lbs	Monitoring of Outfall 001
Phenol	No Data	0.0013 mg/L 0.0004 lbs	Monitoring of Outfall 001
Zinc	No Data	0.0755 mg/L 0.023 lbs	Monitoring of Outfall 001



CONTINUED FROM THE FRONT		EPA I.D. NUMBER (copy from Item 1 of Form 1)	Outfall Number 006
<b>V. Effluent Characteristics</b>			
<p>A and B: These items require you to report estimated amounts (both concentration and mass) of the pollutants to be discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and should be completed in accordance with the specific instructions for that part. Data for each outfall should be on a separate page. Attach additional sheets of paper if necessary.</p> <p><b>General Instructions</b> (See table 2D-2 for Pollutants)  Each part of this item requests you to provide an estimated daily maximum and average for certain pollutants and the source of information. Data for all pollutants in Group A, for all outfalls, must be submitted unless waived by the permitting authority. For all outfalls, data for pollutants in Group B should be reported only for pollutants which you believe will be present or are limited directly by an effluent limitations guideline or NSPS or indirectly through limitations on an indicator pollutant.</p>			
1. Pollutant	2. Maximum Daily Value (include units)	3. Average Daily Value (include units)	4. Source (see instructions)
BOD	1.26 mg/L 0.38 lbs	0.78 mg/L 0.23 lbs	Grab samples taken at discharge to system
COD	23.9 mg/L 6.98 lbs	8.62 mg/L 2.52 lbs	Grab samples taken at discharge to system
TOC	No Data	No Data	Not Monitored
TSS	4.10 mg/L 1.20 lbs	0.16 mg/L 0.05 lbs	Grab samples taken at discharge to system
Ammonia	0.9 mg/L 0.26 lbs	0.25 mg/L 0.07 lbs	Monitoring of Outfall 001
Temperature - summer	25.3	22.0	Monitoring of Outfall 001
Temperature - winter	22.9	17.2	Monitoring of Outfall 001
pH	7.5	6.9	Grab samples taken at discharge to system
Flow	0.035 MG	0.035 MG	Flow discharged to system while flushing
Chloroform	No Data	0.0013 mg/L 0.00038 lbs	
Phenol	No Data	0.0013 mg/L 0.00038 lbs	
Zinc	No Data	0.0755 mg/L 0.022 lbs	

CONTINUED FROM THE FRONT		EPA I.D. NUMBER (copy from Item 1 of Form 1)
C. Use the space below to list any of the pollutants listed in Table 2D-3 of the instructions which you know or have reason to believe will be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it will be present.		
1. Pollutant	2. Reason for Discharge	
Ammonia	See Table V-A&B	
Chloroform	See Table V-A&B	
Phenol	See Table V-A&B	
<b>VI. Engineering Report on Wastewater Treatment</b> A. If there is any technical evaluation concerning your wastewater treatment, including engineering reports or pilot plant studies, check the appropriate box below. <input checked="" type="checkbox"/> Report Available <input type="checkbox"/> No Report B. Provide the name and location of any existing plant(s) which, to the best of your knowledge resembles this production facility with respect to production processes, wastewater constituents, or wastewater treatments.		
Name N/A	Location N/A	



**VII. Other Information (Optional)**

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations for the proposed facility. Attach additional sheets if necessary.

Loudoun Water (LW) provides water supply and wastewater disposal to the unincorporated areas of Loudoun County. This area primarily includes the residential, commercial, and industrial customers living east of US Route 15 to the Loudoun-Fairfax County line. Within this area are numerous commercial and industrial customers that use significant quantities of drinking water for purposes other than human consumption.

Also within this area Loudoun water operates the Broad Run Water Reclamation Facility (BRWRF). The facility produces a highly treated effluent through the use of preliminary screening and primary treatment, activated sludge BNR treatment, membrane filtration, granular activated carbon, and ultra-violet disinfection. The effluent meets all state criteria for Level 1 Reuse Water, as listed in the Virginia Water Reclamation and Reuse Regulation (9VAC25-740-90).

The Reclaim Water Supply Program (ReWSP) was developed in 2009, with an initial demand projection of 4.5-5.5 mgd, to provide reclaimed water to projected light industrial and commercial customers within a service area of about 2-3 miles radius around the BRWRF. The original service concept for the program was based on a low pressure, PVC-pipe system that would make the reclaimed water available to customers at their property line. Each property would install the necessary infrastructure (storage tanks, booster pumps, chemical treatment, etc.) to meet their specific needs. The conceptual design specifically discarded any requirement for tailoring reclaimed water treatment to meet specific customer needs.

The ReWSP system has been in operation since late 2010. Supply in the past consisted of a direct discharge from the BRWRF Plant Water Pumps (W3 System) into the PVC-pipe distribution network. Sodium hypochlorite for disinfection, as required by state regulation, was added directly to the discharge. The system operation is currently monitored by SCADA, and customer demands are measured and recorded in real time by billing meters.

The system has operated reasonably well but has required significant operator time to meet customer demands, and has created a burden on the BRWRF staff. To better address varying demands of the customers of the system, Loudoun Water has recently completed construction of a Reclaim Water Pump Station and Storage Facility (ReWPS) at the BRWRF that includes four variable speed pumps, a sodium hypochlorite disinfection feed, and two, 1.5-MG, storage tanks. This facility only very recently came on line. Operational experience to date has demonstrated a need to be able to flush the system on an as needed basis to provide satisfactory water quality in the distribution system.

Loudoun Water proposes to flush the system twice yearly through five outfall locations listed herein. Discharge rates for each location have been determined by hydraulic model to achieve flow velocities in the system of 2.7-3.0 feet per second. Flushing durations have also been estimated to provide sufficient flow volumes to obtain a complete exchange of water in the system. Of the five locations, one location discharges to an open channel, the other four locations discharge to Loudoun County storm drains. All locations discharge to unnamed tributaries of Broad Run.

**VIII. CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name and Official Title (type or print)

Charles A. Logue, PE - Exec Dir, Loudoun Water - O&amp;M Division

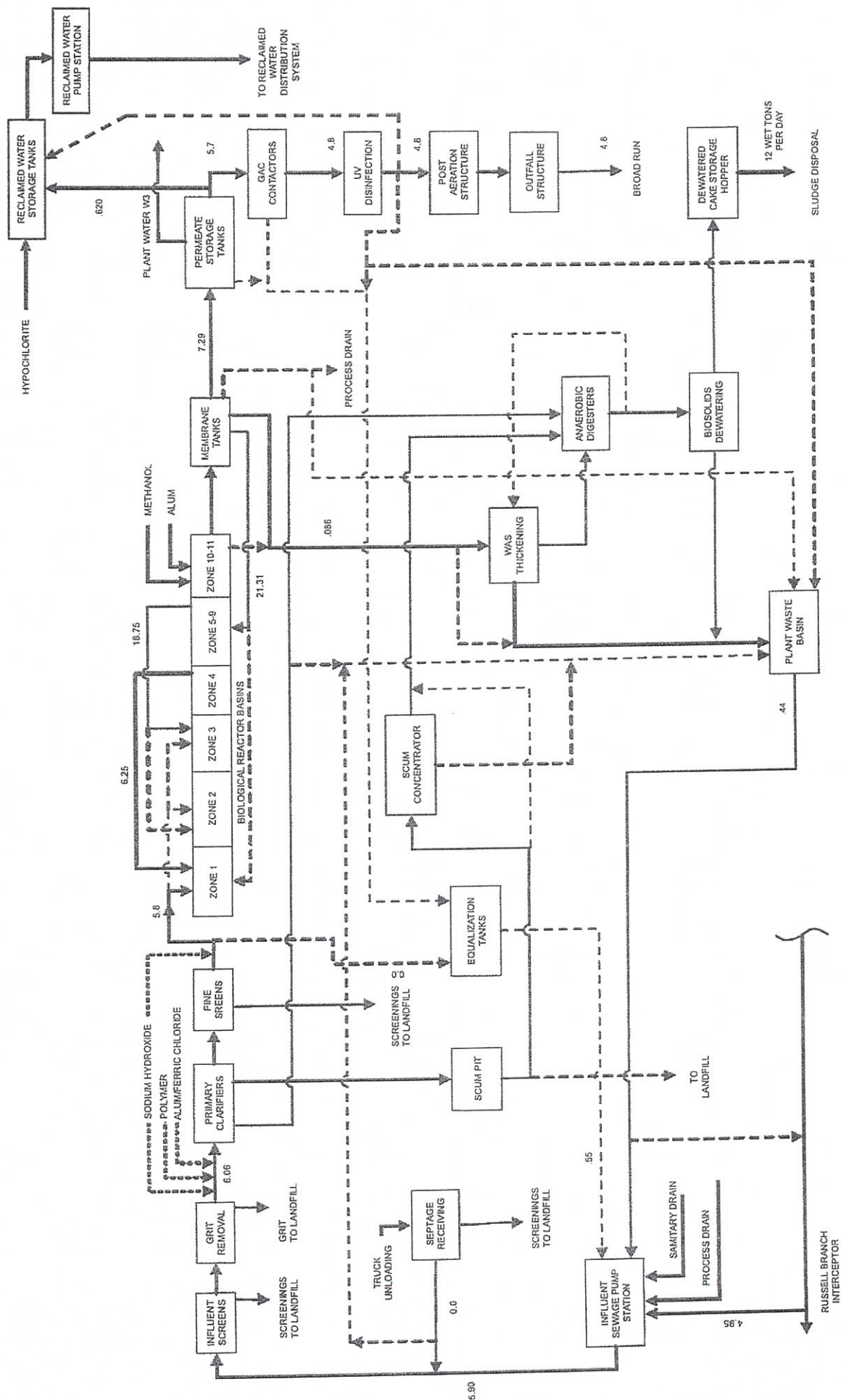
B. Phone No.

(571) 291-7976

C. Signature

D. Date Signed

12 Nov 15





# LOUDOUN WATER

## BRWRF Reclaimed Water System

### Flushing Program

### Outfall Locations

